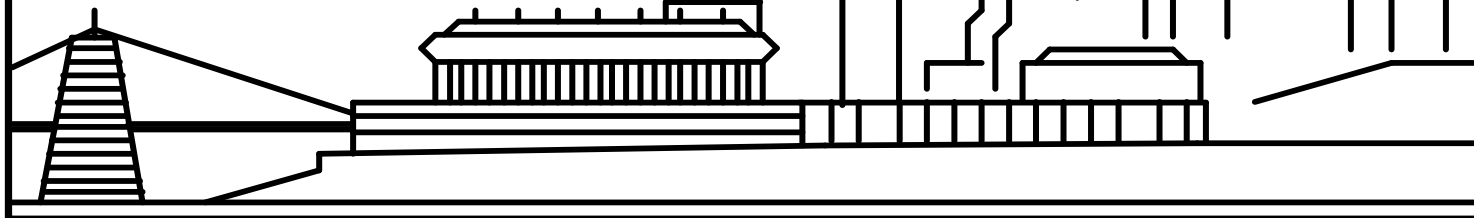




**INSTITUTE OF
ELECTRICAL &
ELECTRONICS
ENGINEERS, INC.**



MARCH 1997

IEEE CINCINNATI SECTION NEWSLETTER

MARCH MEETING: JAVA : LANGUAGE, CHIPS, AND TERMINALS

DATE : THURSDAY, MARCH 27, 1997

PLACE : Institute of Advanced Manufacturing Sciences (IAMS) - See map (page 2) for directions

TIME :
5:30 PM (Social Time)
6:00 PM (Dinner)
7:00 PM (Program)
8:30 PM (Approximate - Adjourn)

COST:
\$7.00 (Members)
\$3.00 (Students)
\$9.00 (Non-Members)

Reservations are required for dinner!!!

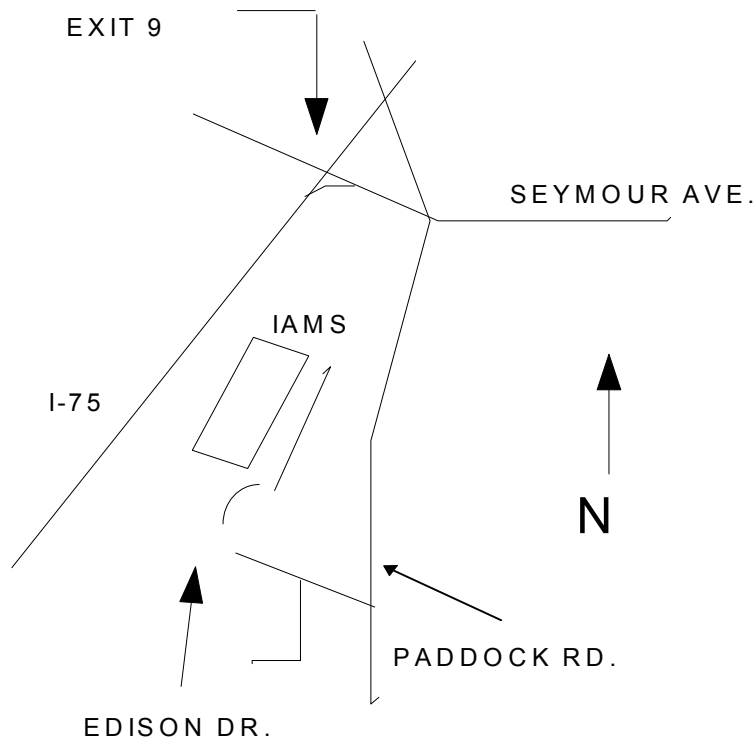
**Please call Dee Scott at 385-9446 by Noon,
Wednesday, March 26, 1997 if you plan to attend.**

ABOUT THE MEETING: This month's meeting will feature a presentation by Mr. Keith Wright of Sun Microsystems. Mr. Wright will discuss JAVA including:

- ⇒ its origin and history.
- ⇒ Why JAVA is changing the future of computing, the language enabling features and component architecture.
- ⇒ Competing technologies, JAVA standardization (the Pure JAVA initiative) and ActiveX.
- ⇒ Network Computers (Thin clients), a JAVAstation demonstration, discussion of the major players and target market segments, JAVA in silicon and embedded devices.

ABOUT THE SPEAKER: Mr. Keith Wright is a Systems Engineer for Sun Microsystems and has seventeen years of experience in large-scale commercial computing environments using client/server and mainframe computer systems. His areas of specialization include database systems, system administration, and JAVA. He graduated from Bowling Green State University with a BS in Computer Science.

MAP TO IAMS



CHAIRMAN'S MESSAGE

by Randy Holt, Chairman

A contingent of IEEE members attended the 62nd Annual ESC Meeting on February 20 where a number of significant awards are given to engineers and scientists in the Greater Cincinnati area. Our section was honored to have Mark Reineck receive the Young Engineer award.

The meeting was held in Memorial Hall, a really beautiful and historical part of downtown Cincinnati. It was built in the early 1900s and recently renovated. It was the first time I've been there, and it seemed to be a perfect place to give awards from an institution (ESC) that has been a fundamental part of the area for many years.

Some students were there from UC and NKU, but the majority of attendees had a lot of gray hair or not much hair at all. In its heyday, ESC was a very large organization and was supported by the major companies in the area. Today, ESC is primarily an "umbrella" organization of the engineering and scientific professional societies that have organizations around the city. In the past, companies encouraged their engineers and scientists to be part of the organization; they even paid part or all of the membership fees. Today, fewer companies support ESC (or any professional society), and, of course, individuals are forced to choose between a larger number of lifestyle options that don't often leave much time for commitments to professional

organizations.

I'm saddened by the lack of attendance at such technical meetings. It seems that engineers and scientists are losing visibility in today's bean-counter companies where their contributions are not always recognized. Our meetings give us the chance to "talk technical" and also prolong friendships that are often lost when people are displaced or retire. These meetings can serve as a common ground, and they can also introduce students and young engineers/scientists to some respected professionals as well as some new technical concepts.

As your chairman, one of my goals this year is to get more of you interested in attending our technical meetings. In the next few months you'll be able to learn some interesting things about Java (language, chips, and terminals) and digital cameras (Kodak). In April, the Cincinnati Section will be picking up the tab for your dinner prior to the technical meeting. I hope many of you will give it a try! See you there?

THE WHIRLWIND PROJECT

by R. J. Reiman, Historian

In the late 1940's and 1950's, most computers were sponsored by defense establishments for such tasks as ballistic trajectories [ENIAC], H-Bomb scientific calculations [EDVAC], guided missiles [BINAC]. When computer technology matched commercial application, such as air traffic control, that technology then entered into the marketplace.

Whirlwind computer project was by MIT, and was sponsored by the Navy. The Navy sought a general purpose flight trainer and stability analyzer for aerodynamic design and needed to be programmable so that it could be suited to every type of aircraft. MIT Servomechanism Laboratory assigned 26 year old Jay W. Forrester, a graduate of the University of Nebraska, to build the controller for the trainer-analyzer. It had to be real-time, mimic the behavior of a wide range aircraft, react to pilot's moves, maneuver the cockpit, drive the instrument panel, simulate wind resistance, and record the "flight" for later analysis.

An analogue computer was tried, but proved to be too inaccurate and inflexible. In 1945, Jerry Crawford of MIT suggested a digital computer be used, based on the success of ENIAC. Limited availability of test equipment, components, and instruments added to the difficulty. By 1947, Forrester-Everett team had designed a high-speed electronic stored-program computer for real-time service. It could also do aircraft control, or run a factory! In 1948, Whirlwind was focused on the real-time computer only, employed 175 people including 70 engineers and technicians. In the team, Forrester was the thinker and idea man. and Everett managed people and could go to the heart of the problem. Whirlwind took 3 years to build, was 2 and a half times the size of ENIAC, with 4,000 tubes to ENIAC's 18,000.

Its internal read/write memory consisted of 32 CRT'S , storing 2,048 96 bit words. These lasted only a month with charges of electrons stored on the face of the tubes, and these tended to fade and result in a loss of memory. Forrester experimented with material developed in Germany during World War II for magnetic amplifiers {Deltamax}. He formed this material into spiral rings, and magnetized first in one direction. and then in the opposite direction, but the material was too slow and was sensitive to physical pressures. The team then strung up doughnut-like rings or cores of magnetic material on a grid of wires, establishing coordinates, so it could serve as an address. By energizing the proper pair of row and column wires on a given grid, the computer could read or write a bit into a magnetic core memory. Ceramic ferrite proved to be much faster and harder than Deltamax. A special smaller version of Whirlwind was built under the direction of Kenneth Olsen, who later established Digital Equipment Corporation. The test computer worked!

In 1953, core memory made Whirlwind performance impressive, operating speed doubled, and maintenance time fell to 2 hours per week. The core memory design would go on to become a standard product of all

computers of its time. Whirlwind became a central element in the Air Defense System which was established to counter the Soviet threat of long-range bombers with atomic bombs.

IEEE NEWS

IEEE-USA LAUNCHES NEW PROFESSIONAL MAGAZINE

IEEE-USA will begin publishing TODAY'S ENGINEER, a new, non-technical IEEE professional magazine for all engineering disciplines. The 48-page quarterly will provide engineers with information that enhances their learning opportunities for career satisfaction and advancement, encourages a business perspective, promotes high standards of professionalism and ethical performance, prepares them for technical and general management, and raises the stature of the engineering profession in society.

Gus Gaynor, president of the IEEE Engineering Management Society, will serve as editor, and Georgia Stelluto, IEEE-USA publications manager, will be deputy managing editor. The first two issues will appear in August and November.

NEW PENSIONS COALITION AIMS FOR PORTABILITY BY YEAR 2000

Vowing that "You CAN take it with you!," participants in the Dec. 12, 1996, IEEE-USA Pension Portability Forum in Washington established an organizational framework for a Pension Portability Coalition that will seek to achieve full portability of pension benefits by the turn of the century.

The day-long gathering, organized by our Engineering Employment Benefits Committee, offered a broad spectrum of organizations interested in pensions issues an opportunity to hear current perspectives from pension-policy analysts, including Ellen Seidman, a special assistant to the President for economic policy; to discuss appropriate directions for needed reforms; and to develop a common vision for positive change.

IEEE-USA's Engineering Employment Benefits Committee Chair Mona K. Draper moderated the coalition-building process, which resulted in a common vision statement by forum participants. In addition to setting a four-year goal for the realization of the coalition's objectives, the group defined pension portability as having as its key elements accelerated vesting, centralized vehicles, transferability of benefits, benefit parity for all employees regardless of tenure, preservation, and universal access.

During the first months of 1997, forum participants will be invited to enlist their organizations' support for the new coalition and meet again to develop specific goals and objectives for common action during the 105th Congress.

IEEE-USA SUPPORTS PENSION ASSISTANCE SUMMIT

IEEE-USA participated in a Jan. 24-25 Pension Assistance Summit in Washington. The summit, which brought together representatives of 60 public and private organizations that offer pension-assistance services, was organized by the Pension Rights Center and funded by the U.S. Administration on Aging, the Internal Revenue Service, the Pension Benefit Guaranty Corporation and the U.S. Department of Labor.

Summit participants sought to identify gaps and overlaps in current pension-assistance information, counseling, referral, advocacy and legal-assistance programs designed to help employees better understand their pension rights and secure their benefits. They also discussed short- and long-term options for improving the provision of pension-assistance service in the face of declining public financial support for such programs.

A final report of the summit will be presented to the Labor Department at the end of March. According to IEEE-USA Engineering Employment Benefits Committee Chair Mona K. Draper, IEEE-USA will include pertinent information gleaned from the summit in a PACE Guide to Pension Assistance to be published later this year.

BENEFITS ISSUES ON FRONT BURNER IN 105TH CONGRESS

After modest success in 1996 in passing employment benefits-related legislation, such as the Health Insurance Portability and Accountability Act and the Small Business Job Protection Act, Congress is set this year to tackle other pressing benefits concerns. Here's a rundown of the major issues that are likely to see legislative action during the current session:

* **HEALTH INSURANCE REFORM:** Health insurance protections for children, physician reimbursement and patient access to specialty care under managed care programs, and retiree health-care coverage are policy areas high on legislators' to-do lists.

* **INDIVIDUAL RETIREMENT ACCOUNTS:** The 1997 version of the Roth-Breaux Super-IRA bill will phase out income limits on eligibility to make tax-deductible contributions to conventional "front-loaded" IRAs by 2001 and establish new non-deductible "back-ended" IRAs, of which contributions will be taxed as income but the inside buildup of interest earnings will be tax-exempt.

* **PRIVATE PENSIONS:** Lawmakers will explore ways to broaden pension coverage -- especially small-business and low-wage workers, make pensions more portable when workers change jobs, and encourage greater personal savings through tax-favored investment vehicles.

* **EMPLOYER-PROVIDED EDUCATIONAL ASSISTANCE:** Legislation to extend the expired graduate-level exclusion for employer-provided educational assistance and the expiring (on May 31) undergraduate-level are pressing concerns.

* **MEDICARE REFORM:** President Clinton has called for some short-term changes -- including the transfer of some Social Security trust funds to help shore up the system -- and the creation of a bipartisan commission to come up with longer-term solutions to the Medicare crisis. Republicans in Congress are expected to agree to some modest compromises in order to keep the volatile issue off the table in the 1998 elections.

* **SOCIAL SECURITY REFORM:** In January 1997, a bipartisan advisory council recommended three approaches to reform, two of which call for individual investment-account privatization. Observers believe there's a good chance this Congress or the next will act to maintain solvency without making major changes in benefits.

IEEE-USA BACKS IRA EXPANSION PROPOSALS

IEEE-USA has endorsed new federal legislation that will enable more Americans to contribute to Individual Retirement Accounts (IRAs). A new "Super IRA" bill was introduced Jan. 24 by Sen. William D. Roth, Jr., R-Del., and Sen. John B Breaux, D-La., and follows identical legislation presented in the House of Representatives by Rep. William M. Thomas, R-Calif., and Rep. Richard E. Neal, D-Mass.

"Expanded IRAs will enable middle-income Americans, including engineers and scientists, to save for their own retirement and help to increase the supply of capital needed for productive investment and jobs creation in the United States," said IEEE-USA Career Policy Chair Paul J. Kostek. "For most Americans, retirement income security depends on access to savings from at least three principal sources: Social Security, employer-sponsored pensions and personal savings. But with Social Security under pressure and downsizing by business and government ever more prevalent, personal savings are becoming increasingly important -- especially for mobile professional and technical workers such as the engineers and computer scientists who belong to the IEEE," Kostek added.

Since they were first established in 1974, IRAs have been an effective stimulus to personal savings for retirement. Between 1982 and 1986, when all working Americans were allowed to make tax-deductible IRA contributions, personal savings held in IRAs increased from \$5 billion to more than \$38 billion. When stricter income-eligibility requirements were re-established in 1987, personal savings held in IRAs fell to \$14 billion -- a 63 percent drop in a single year.

"IEEE-USA strongly supports the Roth-Breaux Savings and Investment Incentive Act, especially the provisions that will restore universal eligibility to make tax-deductible IRA contributions over a four-year period," said Kostek. "Our members will also welcome the opportunity to choose between contributing to a deductible IRA or to a new non-deductible IRA Plus Account. The bill's provisions to repeal current restrictions on

contributions by spouses of active pension-plan participants and index annual IRA contribution limits for inflation are also important steps in the right direction. House and Senate sponsors of this important legislation should get together with the White House and try to enact this important legislation early this year," he stated.

"Expanded IRAs are a good thing for working Americans and for the American economy," Kostek concluded.

PRESIDENT ISSUES NATIONAL ENGINEERS WEEK PROCLAMATION

In honor of the nation's engineering work force, President Clinton offered the following words during National Engineers Week 1997, celebrated Feb. 16-22.

"In our rapidly changing world, we look to America's engineers for the creativity and innovation to meet the increasingly complex technological challenges that lie before us. With outstanding skill and vision, these dedicated professionals strive every day to improve the lives of all of our citizens. Thanks to their determination and ingenuity, they are truly making a world of difference in almost every aspect of human experience. From health care to the environment to the global economy, engineers have made invaluable contributions and promise us a future of even greater health and prosperity.

"During National Engineers Week, engineers across the nation are making a special effort to help millions of students discover practical applications of math, science, and technology through hands-on activities. I encourage all Americans to take advantage of this unique opportunity to learn about the engineering profession and to recognize the countless contributions our nation's engineers make to the quality of our lives."

ADMINISTRATION MODIFIES STANCE ON INTELLECTUAL-PROPERTY TREATIES

Following strong criticism from IEEE-USA and other groups, the Clinton Administration has backed away from some controversial provisions in two new treaties pending in the World Intellectual Property Organization (WIPO). Proposed language -- which would have bound the United States to intellectual-property laws not yet codified by U.S. legislation -- was changed in one treaty and postponed for later consideration in another.

In a Nov. 25, 1996, letter to Dr. Henry Kelly, acting associate director for technology in the White House Office of Science and Technology Policy, IEEE-USA asserted that "new intellectual-property domestic and/or international laws may be needed to keep up with the rapid changes in technology -- but not at the expense of allowing international treaties to adversely dictate U.S. domestic policy in an industry where the United States is the world leader."

IEEE-USA WORKS WITH AAES ON NEW EMPLOYEE-BENEFITS PROJECTS

As the largest constituent member of the American Association of Engineering Societies (AAES), IEEE-USA is supporting several new initiatives of the AAES designed to advance engineers' technology- and career-policy goals. Following are highlights of current projects:

* **Engineering Summit Conference:** AAES will convene a workshop of leaders of the engineering community, industry, government and academia to draft an agenda for a possible Engineering Summit Conference this fall. The summit would help define and communicate an agenda of engineers' policy priorities for Congressional and other policy-makers.

* **Engineers and Scientists Joint Committee on Pensions (ESJCP) Policy Statement on Occupational Retirement Plans:** In December, the AAES Board of Governors approved a new ESJCP policy statement urging collaboration among member societies to develop occupational retirement plans that meet the changing needs of engineering, scientific and technical professionals. A policy statement on needed reforms in the Social Security system is now in development.

* **Engineering Workforce Commission (EWC) Annual Survey of Degree Awards:** The EWC's survey of 637 U.S. engineering programs showed that a record number of engineering bachelor's degrees during the 1995-96 school year went to women (18 percent) and under-represented minorities (10.6 percent). In all, more than 65,000 undergraduate degrees were granted, while more than 31,000 master's degrees and almost 6,800 doctoral degrees were awarded. Results of the survey were published in Jan. 1997 issue of ENGINEERS, EWC's quarterly publication on engineering workforce issues.

NEW MEMBER UPDATE!!!

The following individuals are new IEEE Members in the Cincinnati Section:

ANN M. CHESLEY
BENJAMIN E. MOORE
TIMOTHY D. TAULBEE

ANDREW W. ELOFF
JASON M. RICHARDSON
STEVEN Y. WALTERS
TROY A. WILHELM

AMIR HANIF
JOSEPH W. SCHEHR
LAWRENCE M. WICAL

The following individuals are existing IEEE Members who have moved into the Cincinnati Section:

ROBERT A. CRAWFORD
JOY R. MCCOWN
STEVEN P. MURRAY
LAURENT SCHOUX

DAVID W. HARRIS
BRUCE MCINTOSH
ANTHONY P. NIESE
JEFF M. SWISHER
JAMES A. WALES

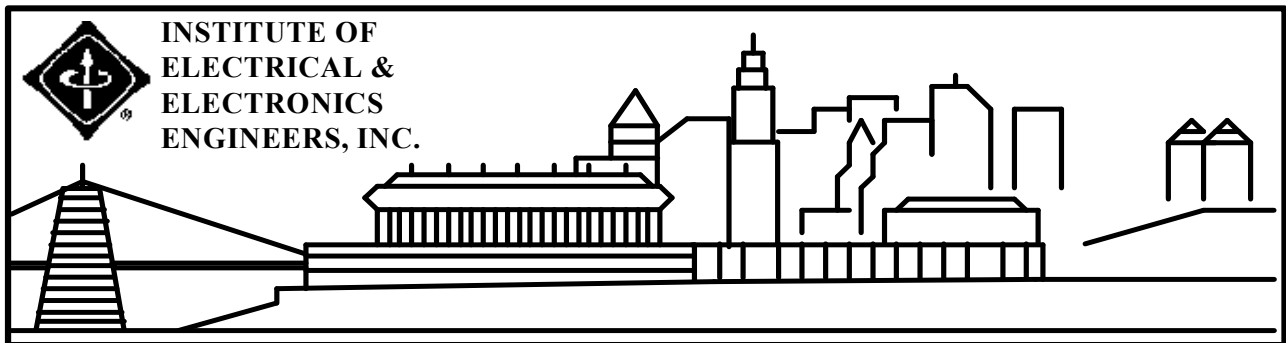
RICHARD H. LOREAUX
CHARLES A. MERK
WYNN D. ROTH
VLADIMIR L. USKOV

Welcome to all!!! If there is anything the Cincinnati Section can do for you, please do not hesitate to contact any of the Executive Committee members listed on the last page of this newsletter.

MARK YOUR CALENDARS!!!!!!

The annual IEEE Golf Outing is scheduled for Friday, June 6, 1997 at the Fairfield Golf Course (formerly Pleasant Run). The cost will be the same as last year (\$20 for IEEE members and \$35 for non-members). Dinner will be a sit-down charcoal New York Strip steak, with baked potato, vegetable and salad and there will be coffee, tea, milk, FREE BEER, soft drinks, snacks and PRIZES!!! First tee off time is 11:00 am.

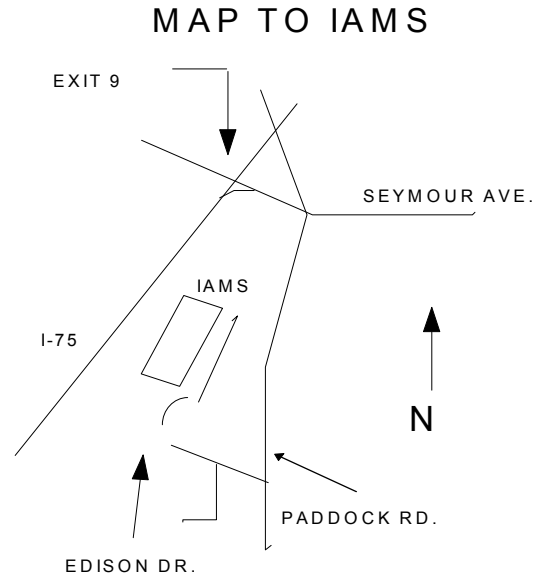
Look for a flyer in the next newsletter for more information!!!!!!



EE & EET STUDENTS IEEE MEETING

DIGITAL CAMERAS FREE PIZZA

**Thursday
5:30 PM
April 24, 1997
IAMS
(See Map A)**



RESERVATIONS REQUIRED BY NOON, TUES. APRIL 22nd

Please notify:
Jim Everly - UC/CAS (556-4241)
Steve Yelton - CSTCC (569-1768)
Randy Holt - NKU (572-5710)

Dee Scott (call for meeting reservations)

Randy Holt - Chairman

Bob Haas - Vice Chairman

Orest Melnyk - Treasurer

Chris Anderson - Secretary

Ron Harbaugh - Member-At-Large

Eric Wright - Member-At-Large

Jack Beckmeyer - Arrangements Chairman

Bill Lohnner - PACE Chairman

Bob Morrison - Editor

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FEBRUARY 1997

IEEE CINCINNATI SECTION NEWSLETTER



**The Institute of Electrical and
Electronics Engineers, Inc.**

C/O Dee Scott

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Cincinnati, Ohio 45253

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